

> Step 1

a) Given data:

$$\text{MTTF} = 5 \text{ years}$$

$$\text{MTTR} = 1 \text{ week,}$$

$$\text{MTBF} = ?$$

> Step 2

$$1 \text{ year} = 365 \text{ days}$$

$$1 \text{ week} = 7 \text{ days}$$

$$1 \text{ day} = 24 \text{ hours}$$

$$\text{MTBF} = (\text{MTTF} + \text{MTTR})$$

$$\text{MTBF} = (5 \text{ years} + 1 \text{ week})$$

$$= 5 \times 365 + 1 \times 7$$

$$= 1832 \text{ days}$$

$$= 1832 \times 24$$

$$\boxed{\text{MTBF} = 43968 \text{ hours.}}$$

> Step 3

b) Given data:

$$\text{MTTF} = 10 \text{ years}$$

$$\text{MTTR} = 5 \text{ days,}$$

$$\text{MTBF} = ?$$

> Step 4

$$\text{MTBF} = (\text{MTTF} + \text{MTTR})$$

$$\text{MTBF} = (10 \text{ years} + 5 \text{ days})$$

$$= (10 \times 365 + 5)$$

$$= 3655 \text{ days}$$

$$= 3655 \times 24$$

$$\boxed{\text{MTBF} = 87720 \text{ hours.}}$$

Step 1

a) Given Data:

$$\text{MTTF} = 5 \text{ years}$$

$$\text{MTTR} = 1 \text{ week.}$$

$$\text{Availability} = ?$$

Step 2

$$1 \text{ year} = 365 \text{ days}$$

$$1 \text{ week} = 7 \text{ days}$$

$$1 \text{ day} = 24 \text{ hours}$$

$$\text{Availability} = \frac{\text{MTTF}}{\text{MTTF} + \text{MTTR}}$$

$$= \frac{5 \text{ years}}{5 \text{ years} + 1 \text{ week}}$$

$$= \frac{5 \times 365}{5 \times 365 + 1 \times 7}$$

$$= \frac{1825}{1825 - 7}$$

$$= \frac{1825}{1832}$$

$$\boxed{\text{Availability} = 0.996}$$

> Step 3

b) Given Data:

$$\text{MTTF} = 10\text{years}$$

$$\text{MTTR} = 5 \text{ days.}$$

$$\text{Availability} = ?$$

> Step 4

$$\text{Availability} = \frac{\text{MTTF}}{\text{MTTF} + \text{MTTR}}$$

$$= \frac{10 \text{ years}}{10 \text{ years} + 5 \text{ days}}$$

$$= \frac{10 \times 365}{10 \times 365 + 5}$$

$$= \frac{3650}{3650 + 5}$$

$$= \frac{3650}{3655}$$

$$\boxed{\text{Availability} = 0.998}$$

> Step 1

Availability is the measure of service with respect to alteration between two states of accomplishment and interruption.

Availability is quantified as

$$\text{Availability} = \frac{MTTF}{(MTTF+MTTR)}$$

If MTTR is 0 then whole fraction value will be 1 and thus, replacement time for hardware is quite feasible.

➤ Step 1

MTTR is the dominant factor for determining availability. Shrinking MTTR can help availability as much as increasing MTTF. If MTTR gets high, the availability will be decrease. Increasing MTTR can not help availability as much as increasing MTTF. So, to repair the device is very difficult.